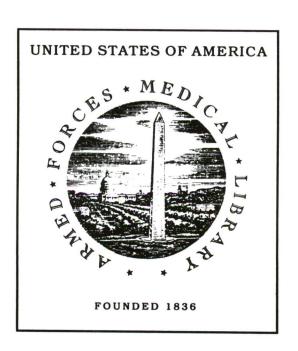
Report to the House Committee on National Security Senate Committee on Armed Services House and Senate Committees on Appropriations

Gender Neutral Standards

Office of the Assistant Secretary of Defense (Force Management Policy)

April 1995





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This report was submitted in compliance with the Defense Appropriations Bill, 1995 (Report 103-562, p73) requesting that the Department of Defense (DoD) submit a study on the development of gender neutral standards in the military. DoD's study of standards for enlistment and training indicates that when physical standards are used in the Military Services they are applied without regard to gender. The study summarizes the experience of the Military Services over the past 20 years in the utilization of physical standards in relation to military occupations. While each of the four Services have approached the matter differently, there is no indication that the absence of uniformity among the Services has affected mission performance. The Services have not changed the occupational performance standards in any specialty recently opened to women. Most of the additional assignment opportunities come from opening jobs for women in units previously closed to them for duty in their current specialty. Training standards for selection into and continuation of career fields open to both men and women will remain gender-neutral. 15. Subject Lehins gender neutral standards, recruitment standards, physical standards, military standards								
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Gender Neutral Standards in the U.S. Military

Section 1

OVERVIEW

In the Department of Defense Appropriations Act, 1995, Congress acknowledged Service efforts to integrate women into the military and further emphasized that the objectives of such efforts must be to eliminate gender-based discrimination while maintaining the operational readiness of the Armed Forces. The House Committee on Appropriations expressed concern that current DoD training standards were not, in fact, gender-neutral and could therefore potentially have a negative effect on morale and readiness. The Committee then directed the Department to "submit a study on the development of gender neutral training standards to the Committees on Appropriations and Armed Services of the House and Senate by April 30, 1995," stating that the "ultimate goal is to establish a set of objective training standards tied to the skill and performance requirements of specific jobs in the military. Anyone fulfilling those training standards, regardless of gender, should be considered qualified to perform that job." Lowering current training standards to accommodate the integration of women would reduce readiness and not be an acceptable solution. This report responds to that Congressional request.

Concern about physical strength job requirements was triggered by the Secretary's January 13, 1994 memorandum which rescinded the "Risk Rule" effective October 1, 1994, and outlined a set of restrictions that might apply to the assignment of women. One restriction stated that positions may be closed "...where job related requirements would necessarily exclude the vast majority of women Service members." The new policy, potentially opening additional occupations to women, did not diminish the requirement that all individuals, regardless of gender, who are selected for training in specific occupations be able to meet job performance standards. Section 543 of the National Defense Authorization Act for Fiscal Year 1994 specified that: (1) in military career fields that were open to both men and women, qualifications would be based on common, relevant performance standards, not on the basis of gender; (2) the Services would refrain from the use of gender quotas, and from changing occupational standards to modify the number of women in particular occupations; and (3) the Services would prescribe gender neutral occupational standards for any specialty or career field in which muscular strength or stamina are required for successful job performance.

The DoD General Counsel determined that the Services were not required to have physical standards for any occupation. However, if physical standards did exist, they must comply with the above specifications. The criteria did not apply to general physical fitness or training requirements. Further, if any physical performance requirements were established or

changed, they must be submitted to Congress with a justification and rationale 60 days prior to implementation. As a result, the Department reviewed occupational physical standards, focusing on the use of physical standards in the job assignment process. The findings are presented in Section 2. Service-specific training standards, particularly any gender-specific requirements, also were examined; results of that effort are summarized in Section 3.

Section 4 provides an overview of published literature on physical strength standards for civilian jobs, particularly occupations that have not traditionally included many women (e.g., firefighters, police officers). The purpose of the review was to identify policies, procedures, strength measures, etc. that might apply to military occupations. The detailed bibliography is included at the end of the report. Section 5 outlines options for the military and plans to ensure the integration of women in military occupations without compromising job performance and readiness.

Section 2

OCCUPATIONAL PHYSICAL STANDARDS: JOB ASSIGNMENT

The Military Services employ a variety of standards, including aptitude, height/weight, age, etc. which are applied at a variety of decision points (e.g., pre-service screening, job classification, retention or re-enlistment). Some standards are job-specific such as mental and/or physical abilities linked to specific jobs: electronic aptitude is directly related to training and job performance in electronics occupations. Other standards are general; they apply to Service members regardless of their occupation and include standards for physical well-being such as height/weight or cardiovascular fitness standards. These types of physical standards appropriately vary by gender and age; they are not directly related to job performance.

This section focuses on Service programs to develop physical (strength) standards for assigning individuals to entry-level occupations. The Army¹, Navy², and Air Force³ initiated various actions during the last 20 years to analyze the physical requirements of their jobs and to develop methods of measuring the physical potential of Service applicants. A summary of Service efforts in this area is provided below.

Army. The Army traces the origin of its work to the General Accounting Office Report, "Job Opportunities for Women in the Military: Progress and Problems (1976)." Among the

Office of the Deputy Chief of Staff for Personnel. (1982). Women in the Army policy review. Department of the Army, Washington, DC.

² Robertson, D.W. (1982). Development of an occupational strength test battery (STB), NPRDC TR82-42, San Diego, CA.

McDaniel, J.W., Skandis, R.J., & Madole, S.W. (1983). Weight lift capabilities of Air Force basic trainees, AFAMRML-TR83-0001, San Antonio, TX.

report's recommendations were: (1) develop standards for measuring the strength, stamina, and other requirements for jobs where such attributes are factors in effective performance, and (2) require women to meet the same training and performance requirements as men in the jobs assigned.

In its analysis, the Army used a procedure originally developed by the Department of Labor. Army subject-matter experts classified all entry-level jobs into one of five categories based on the lifting requirements of the job. For example, the Finance specialist must occasionally lift a maximum of 20 pounds and frequently lift 10 pounds ("Light" category) while the Infantryman must occasionally lift more than 100 pounds and frequently lift more than 50 pounds ("Very Heavy" lifting category).

A break-out of the 333 entry-level jobs in the 1980s showed that 36 were classified as "Light," 64 "Medium," 61 "Moderately Heavy," 45 "Heavy," and 127 "Very Heavy." The classifications were based on judgments by subject-matter experts of the most physically demanding tasks performed under combat conditions. Table 1 depicts the full set of the five lifting categories. Every entry-level Army job had its physical demand prerequisite published in Army Regulation (AR) 611-201, "Enlisted Career Management Fields and Military Occupational Specialties," which provides descriptions of each job along with the medical and aptitude test requirements.

Table 1
Physical Demand Categories

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Lift 20 lb. MAX with frequent lifting of 10 lb.	Lift 50 lb, MAX with frequent lifting of 25 lb.	Lift 80 lb. MAX with frequent lifting of 40 lb.	Lift 100 lb. MAX with frequent lifting of 50 lb.	Lift over 100 lb. with frequent lifting of over 50 lb.

Physiologists from the Army Medical R&D Command developed a method to measure the physical potential of Army applicants during the pre-enlistment process. The Army developed a battery of strength and stamina tests, the Military Enlistment Physical Strength Capacity Test (MEPSCAT), which correlated in excess of 0.80 with male and female soldiers' performance of the physical activities of their jobs after initial entry job training. Pre-enlistment tests correlating as highly as 0.80 with performance criteria are not common. The most valid test from the battery was introduced at Military Entrance Processing Stations (MEPS) in 1983 for testing Army applicants. It consisted of a device that rode up and down on tracks fastened to a wall, under which applicants squatted and lifted to a height of 60 inches as weights were added until the applicant could lift no more.

⁴ U.S. Department of Labor. (1981). Handbook for analyzing jobs. Draft Edition, Washington, DC.

Myers, D.C., Gebhardt, D.L., Crump, C.E., & Fleishman, E.A. (1984). Validation of the military entrance physical strength capacity test. ARI TR 610, Alexandria, VA.

Although an evaluation of the MEPSCAT indicated that the "program [was] contributing to a better match between physical capabilities and job demands," there was adverse impact on women. Army research had shown that 52 percent of Army jobs required "Heavy" or "Very Heavy" lifting and only 8 percent of female applicants (82 percent of male applicants) qualified for "Heavy" and 3 percent of females (but 80 percent of the males) qualified for "Very Heavy" lifting. This meant that screening Army applicants on strength test scores would have had an extreme impact on women. Therefore, the Army used its strength test to counsel applicants away from jobs involving heavier lifting than warranted by their scores. However, an otherwise qualified Army applicant was not denied the job he or she requested on the basis of the strength test results.

In 1989, the Military Entrance Processing Command, responsible for administering the MEPSCAT, asked the Army to discontinue strength testing because of time and mission constraints. In 1990, the Army discontinued use of its strength test.

Navy. The Navy conducted extensive research in the late 1970s and early 1980s at the Navy Personnel Research and Development Center (NPRDC) on the requirement for job-specific physical standards. The study determined that the physical demands of Navy jobs varied extensively in both type and level of effort required. A unique Strength Test Battery (STB) was developed to measure physical aptitude through a wide variety of muscular capabilities. The STB was tested on groups of both men and women sailors from seven enlisted ratings considered the most labor intensive.

The evaluation of the STB indicated that more women than men would have been excluded from those ratings tested if the STB was used as an occupational standard. The Navy elected not to implement the STB; part of the Navy rationale was the impressive performance of women at sea. Women have served on ships since 1978 and have successfully filled positions requiring strenuous work in varied shipboard environments. The lack of occupational physical standards has not adversely affected Fleet readiness. Training for Navy Diver, SEAL, Explosive Ordnance Disposal, Aircrew, and Rescue Swimmer, however, does employ physical standards beyond measures of general fitness; the specialized physical standards are gender-neutral (i.e., the same requirements apply equally to men and women).

Air Force. The Air Force began to study occupational strength standards in the early 1970s when the Equal Rights Amendment (ERA) was passed by Congress. In the study of occupational strength standards, the Air Force sought to ensure that physically demanding jobs were adequately staffed as men and women competed equally for the same jobs. The goal was to develop a gender-free classification program which matched recruits to jobs without regard to sex. Over the past 20 years, the Air Force has developed an objective approach to predicting the ability of recruits to meet the physical demands of jobs.

In January 1975, the Air Force convened a working group of experts to define a method to measure physical strength which could be used to determine the ability of recruits to

⁶ U.S. Army Concepts Analysis Agency. (1985). Evaluation of the military entrance physical strength capacity test. CAA-SR-85-23, Washington, DC.

successfully meet the physical demands of a job. The working group consequently defined the "Factor-X" test, a three-level weight lifting strength test. In March 1976, the Air Force implemented the "Factor-X" test as an interim measure while thorough research was conducted. The "Factor-X" test was revised and updated in 1981 based on preliminary findings of the ongoing research program. On August 1, 1987, after validation of the test, the Secretary of the Air Force implemented the current nine-level "Factor-X" weight lifting strength test (renamed the Strength Aptitude Test [SAT]).

The SAT was developed through an extensive research program, conducted between 1977 and 1982. This effort developed the test and established empirical relationships between performance on the test and performance on specific job tasks. The program then surveyed the physical demands of every career field in the Air Force. This research actually measured the physically demanding components (lifting, carrying, pushing, etc.) of each demanding job.

The Air Force adopted strength requirements for each enlisted Air Force specialty (AFS). As each new recruit is processed at Military Entrance Processing Stations, the SAT is administered, using a weight lifting machine similar to those found in most gymnasiums. Each recruit starts at 40 pounds and must lift the weight to a height of six feet. If the recruit can lift the weight, additional weight is added in 10-pound increments until the recruit cannot lift any additional weight or achieves the maximum required weight of 110 pounds. The results of the recruit's SAT (along with other prerequisites) are then used to determine the recruit's qualification for specific specialties. Each AFS has a minimum strength criterion established as a prerequisite for classification into that specialty. The ability of a recruit to lift the weight required for a specific AFS is entirely gender neutral. If a job requires a 70-pound lift on the SAT and the recruit meets or exceeds the requirement, he or she is eligible for that job as long as other prerequisites are met.

As job requirements changed due to technology enhancements and career field reorganizations, the physical demands have been resurveyed periodically and the strength requirements adjusted to ensure recruits can successfully meet the demands of the job. This resurvey includes a review of the job's task listing, a field survey of the tasks performed and the manner in which they are performed as well as an interview with incumbent workers about the physical demands of the job. The objective measures of the physical demands are then entered into a computer algorithm that calculates the SAT criterion for each job.

During development of the SAT, it was found that there was a broad overlap in coverage between the strength test and an endurance test. In other words, with few exceptions, those who passed the strength test, also passed the endurance test. The Air Force analysis of all enlisted jobs revealed that only a few have a significant endurance component. Since the SAT is applicable to all jobs which are physically demanding, an additional and relatively expensive endurance test was not considered cost effective.

The Air Force has had good experience with its SAT. Because the SAT criteria are based exclusively on objectively measured physical demands of individual jobs, there is an audit trail. The criteria are computed from an average physical demand (not maximum demand), and

weighted by frequency of performance and percent of the workers performing a task. Of just over 300 enlisted jobs, half have the minimal physical demand rating which excludes only a small fraction of one percent of applicants. Only 13 jobs have physical demands in the three highest test categories, so the SAT has not been a burden to recruiting or resulted in extensive adverse impact. The Air Force has a greater percentage of women than the other Services and the SAT certifies their ability to perform. Since implementation of the test, complaints of failure to perform for lack of strength have almost disappeared. Since modified career fields are remeasured, the SAT criteria remain valid and noncontroversial.

Marine Corps. The Marine Corps has neither developed nor used specific physical standards as requirements for assignment to particular Military Occupational Specialties (MOS). The Marine Corps has encountered minimal assignment problems due to physical difficulties. The Marine Corps philosophy is to employ women in all roles except those explicitly prohibited by combat policies.

Section 3

OCCUPATIONAL PHYSICAL STANDARDS: JOB TRAINING

There are three broad types of training in the military: (1) basic training, (2) classroom training (e.g., AIT or Advanced Individual Training), and (3) on-the-job training. Basic training is designed to teach new recruits about military life (e.g., proper wearing of the uniform, discipline, etc.) and to physically condition them for military duty in a general sense; basic training is not occupation specific. Formal classroom training, by its very nature, tends to be more information-based rather than performance oriented; lessons are job-specific and linked to job knowledge requirements. On-the-job training continues where classroom training leaves off; here, job tasks are taught and the training emphasizes actual hands-on performance. Time and resource constraints may play a part in determining which tasks are trained in the classroom or trained on the job.

None of the Services employ either gender-specific training standards or gender-specific strength requirements to graduate from basic or job-specific training. Training standards are based on tasks, duties, and knowledge required to perform in an occupation; to successfully complete training, individuals, regardless of gender, must meet those standards. Individuals who have successfully completed classroom training, but have difficulty on the job typically are counseled and receive more training in their duty position by unit personnel (continued performance failure is grounds for dismissal). The Services have not changed training standards to accommodate women.

Proper identification of individuals likely to experience difficulty with the physical aspects of their job is important. One point at which this could be accomplished is prior to

completion of classroom training. Physical strength training programs could be provided on an as-needed basis. The problem with this approach is that resources have already been expended to train the individual, and he or she may simply not be able to gain the necessary strength. Depending on the extent to which this sort of program is needed and proves successful, it may or may not be more cost-effective to screen individuals before they are classified into specific occupations.

Given that a number of years have passed since some of the Services developed physical strength testing programs, we conducted a review of the civilian literature regarding physical requirements for job qualification. The review focused on civilian occupations which require strength and stamina (e.g., firefighters, police officers) and the procedures required for identifying necessary physical strength standards, development of tests, testing and application of standards to occupations, including implications for adverse impact on women. A summary of that review appears in the next section.

Section 4

PHYSICAL STRENGTH STANDARDS IN THE PRIVATE SECTOR

Physical ability testing has assumed more importance in the field of personnel selection and training than in the past. Increasing numbers of women are competing for physically demanding jobs. Such jobs tend to have few education prerequisites, offer entry-level training and apprenticeships, and provide attractive compensation packages, especially when compared to more traditional jobs for women (e.g., clerical, retail sales). There is, therefore, a need to ensure that job requirements are met, including physical ability requirements.

It has only been in the past few years that research on physical ability testing in employment settings has come to the forefront in industrial psychology. Much of the early research was experimental in nature, and was not applied in operational settings. Recent studies have focused on selection for law enforcement and firefighting positions; there is still little published research on post-selection job performance. However, since job performance-related physical ability tests are frequently part of selection and only applicants (male or female) who pass the test are offered employment, it is reasonable to assume that those selected can perform their jobs acceptably.

Physical Ability Testing. Similar to techniques used in military personnel selection and classification, a thorough job analysis is the prelude to identification of physical requirements of civilian occupations such as police or firefighter. The job/task analysis is the basis for developing criterion-related physical requirements. A physical ability test, then, is developed to measure job-related physical abilities. Most of the physical tests use work simulation tasks such as dragging a dummy or climbing a ladder rather than lifting weights or running.

Until recently, relatively few women have applied for or been employed in physically-demanding jobs. As a result, many studies of physical ability have been conducted with all (or primarily) male subject pools. Accordingly, research on gender differences in job settings is limited. In studies with adequate female sample sizes, gender differences are found on physical ability tests; males, on average, have greater upper body strength than females. However, there are smaller gender differences in lower extremity strength compared to the upper extremities. In addition, women perform better than men on pulling and pushing tasks; men are relatively better at lifting, lowering, and carrying tasks.

Even with these gender differences in physical strength, it must be remembered that these are group averages; some females are as strong as some males (and some males are not as strong as the "average" male). The goal of employee selection procedures is to hire qualified applicants by matching abilities of individuals to job requirements; for example, women with sufficient upper body strength to perform required tasks get selected while men with insufficient strength do not get selected. Employers have long recognized the economic (need for additional personnel, time), political (selective duty assignments), and ethical (increasing chances of injury to self or others when an individual is unable to perform adequately) consequences of hiring unqualified personnel. These considerations are really no different for physical or intellectual abilities.

In addition to their selection processes, civilian employers primarily use two techniques to improve the likelihood that individuals can successfully perform physically demanding tasks:

Physical Training. Research on physical ability training has emphasized physical fitness conditioning and strength training. In general, results indicate that muscle overload achieved during training improves performance in some sports and on some motor activities. However, caution should be exercised in interpreting results, because strength is very specific to muscle groups and range of motion. One strength test of a particular muscle group will not be representative of a person's total muscular strength. Also, the effectiveness of physical training depends on an individual's initial physical condition, intensity and duration of training, and motivation. Furthermore, there is rapid loss of physical conditioning. After one to two weeks of no training, significant loss of physical capacity is seen. Research with firefighters found that a conditioning program for recruits improved the fitness of participants; however, normal job activities, without a continued fitness program, were not sufficient to maintain fitness levels.

Training also can affect the interaction between gender and experience which may result in differences in techniques used by individuals to perform physical tests, particularly work simulation tasks. For example, in a task to measure lower body explosive strength, subjects were asked to crawl 35 feet as quickly as possible. Women tended to rely primarily on upper body strength, whereas men tended to use both upper and lower body muscles to propel themselves. Since gender differences are greater for upper body strength, women were at a greater disadvantage in performing this task. However, their performance might have been improved with training on appropriate strategies to maximize task performance.

Job Redesign. Besides training, employers can redesign jobs to increase the number of women (and men) capable of performing physically-demanding tasks. Equipment can be redesigned so that it is smaller and/or lighter or placed on moveable platforms or wagons. Frequently used materials can be moved to more accessible places (e.g., move from the top shelf to the middle shelf). Tasks can be performed by two individuals instead of one. Job analysis can inform the job redesign process.

Summary. While gender differences indeed exist, physical ability tests still may be fair predictors of male and female performance. That is, lower scores on physical ability tests (whether male or female), should predict lower performance on job-related performance measures. However, lower performance must not be confused with inadequate performance; if a job requirement is met by lifting 50 pounds, it is inconsequential whether an individual can lift 75 pounds. For this reason, it is critical to perform accurate job analyses and carefully identify those jobs that warrant selection of candidates based on their physical abilities.

Section 5

DISCUSSION AND CONCLUSIONS

The military employs a sequence of standards, from selection to job classification to training to retention. The ultimate goal of these standards is to promote the best possible match between abilities of the Service member and requirements of the job. The process is well articulated and monitored with respect to cognitive abilities. However, with the exception of the Air Force, physical abilities are less well incorporated in the person-job match process. Increasing job opportunities for women in the military may increase the need to include the measurement of physical abilities in the enlistment and retention processes since the average female has less upper body strength than the average male. Jobs that require a great deal of upper body strength will prove difficult for the majority of females and increase the chances that they will not be able to meet job requirements. At present, the degree to which this is an issue is not clear.

The Military Services are not reporting widespread difficulties related to physical strengths. However, since the potential exists for physical strength to become more of an issue, the situation should be closely monitored. Failures to perform up to the standards of the job should be reported, documented, and maintained in order to inform development of policies and procedures for correcting any deficiencies. Depending on the extent and severity of physical strength concerns, the Services might then take a variety of actions including: (1) improve job counseling procedures to steer individuals away from jobs that have strength requirements beyond their capabilities; (2) provide job-specific physical strength training and maintenance; and (3) redesign tasks, where possible, so that less physical strength is required (e.g., use mechanical job aids, replace individual task with team task performance).

These actions would benefit males as well as females and, unlike development of job-specific physical performance predictors, do not require a substantial investment. With no indication of mission degradation due to lack of physical strength, it is difficult to justify the costs of developing job-specific physical strength tests. However, relatively low-cost actions such as modifying unit exercise programs to include job-specific strength training can be instituted by the Services should they identify a specific need. This is a more cost-effective approach which still recognizes the importance of ensuring that job requirements can be met by incumbents. The bottom line is that readiness will be enhanced, not degraded, by accounting for individual differences in physical abilities, but at this time, additional, formal standards are not necessary.

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MAY 22 1995

Honorable Floyd Spence Chairman Committee on National Security House of Representatives Washington, DC 20515

Dear Mr. Chairman:

The report of the House Committee on Appropriations accompanying the Department of Defense Appropriations Bill, 1995 (Report 103-562, p.73) requested that the Department of Defense submit a study on the development of gender neutral training standards in the military. The enclosed report is provided in response to that request.

Our study of standards for enlistment and training indicates that when physical standards are used in the Military Services they are applied without regard to gender. The study summarizes the experience of the Military Services over the past 20 years in the utilization of physical standards in relation to military occupations. While each of the four Services have approached this matter differently, there is no indication that the absence of uniformity among the Services has affected mission performance. The Services have not changed the occupational performance standards in any specialty recently opened to women. Most of the additional assignment opportunities come from opening jobs for women in units previously closed to them for duty in their current specialty. Training standards for selection into and continuation in career fields open to both men and women will remain gender-neutral.

I trust that the enclosed report is responsive to the request of the House Committee on Appropriations and will prove useful in your consideration of Defense personnel programs. Similar letters have been sent to the Chairmen and Ranking Members of the Senate Committee on Armed Services, and the defense subcommittees of the Senate and House Committees on Appropriations.

Sincerely,

Principal Deputy Assistant Secretary

Enclosure: As stated

cc: Honorable Ronald V. Dellums Ranking Member







MAY 22 1995

Honorable Strom Thurmond Chairman Committee on Armed Services United States Senate Washington, DC 20510

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Sincerely,

Principal Deputy Assistant Secretar

Enclosure: As stated

cc: Honorable Sam Nunn Ranking Member







MAY 22 1995

Honorable C. W. Bill Young Chairman Subcommittee on National Security Committee on Appropriations House of Representatives Washington, DC 20515

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Sincerely,

Francis M. Rush, Jr.

Principal Deputy Assistant Secretary

Enclosure: As stated

cc: Honorable John Murtha Ranking Member







MAY 22 1995

Honorable Ted Stevens
Chairman
Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510

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Sincerely,

Principal Deputy Assistant Secreta

Enclosure: As stated

cc: Honorable Daniel K. Inouye

Ranking Member

